



KNAPP (P.C.)

METHODS OF EXAMINATION

IN

Medico-Legal Cases Involving Suits
for Damages

FOR REAL OR SUPPOSED INJURIES TO
THE BRAIN AND SPINAL CORD.

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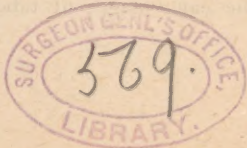
ON METHODS OF EXAMINATION IN MEDICO-LEGAL CASES INVOLVING SUITS FOR DAMAGES FOR REAL OR SUPPOSED INJURIES TO THE BRAIN AND SPINAL CORD.¹

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WHEN a patient has been for a long time the victim of nervous disease, it often happens that he is disposed to exaggerate his symptoms, or else he may be, from his natural incapacity or as the result of disease, incapable of giving trustworthy information. These sources of error are also present, sometimes even to a greater degree, in patients with nervous disease due to injury. In such cases the victim of an accident returns to consciousness to meet the letter of the "shyster" lawyer who urges him to bring suit against the persons or the company liable for his injuries; he has the question of a law suit presented to him in repeated family conclaves; he is visited by experts who subject him to all sorts of examinations; he is exposed to the worry and excitement of a trial, with its appeals and delays; through it all he is harassed by the vital questions, "What will become of me? Shall I be able to earn any more money? Who will provide for my wife and children?" At last all is over, he is left to himself, his anxieties about money are relieved, and, being free from excitement, he not unnaturally gets better. In the majority of cases the symptoms are largely subjective, and the railway sur-

¹ Read before the Massachusetts Medico-Legal Society, October 2, 1889.



geons, unused to the symptoms of nervous disease and incapable of estimating them at their true value, note the improvement and say that the man was a fraud. In many cases, however, the improvement is partial and often only temporary. Besides there are, perhaps, other cases where the patient has sustained some trifling injury; these cases are undoubtedly not seriously injured and some of them are undoubted frauds, and are successful in imposing upon the railway companies. It behooves us, therefore, to study carefully the symptoms, and to see in what ways we can determine whether the case before us is genuine or not. It is my purpose, therefore, in this paper to speak of some of the methods which the physician should employ in his examination. In so doing I shall avoid saying much of methods which require special and complicated apparatus, and I shall speak only of those methods of examining special organs like the eye or the ear, which the general practitioner ought to understand and to be able to employ.

In the first place I would say here, once for all, that in examining the patient, he should be carefully and unobtrusively watched during the whole period of examination. In this way many efforts at simulation may be detected, a paralyzed limb will be seen to be moved, an assumed expression will be dropped, or a feigned lameness will disappear. This obvious injunction is, however, so familiar and has been so repeatedly insisted upon that it has led to a source of error. When certain symptoms are elicited only by special methods of research and do not appear during the patient's ordinary acts, it is often hastily and incorrectly assumed that they are simulated. Now it is perfectly well-known that we have precisely such a state of affairs in many organic diseases of the nervous system. In the early stages of *tabes dorsalis* we may note no

peculiarity of the patient's gait or station, but if we make him walk or stand barefooted and with his eyes shut we can detect the beginning of ataxia. In multiple sclerosis the characteristic intention tremor may be absent when the patient performs the more automatic movements of taking off his hat or shaking hands, but when he tries to write or lift a glass full of water to his mouth the tremor appears. It is obvious, then, that if we reject such tests we deprive ourselves of extremely valuable data for diagnosis. Moreover, if we consider the mental processes which the simulator would naturally employ, it is not credible that he would conceal his symptoms from ordinary view and reveal them only on the application of unfamiliar and highly specialized tests. Feigned symptoms are aggressively prominent, but in many of these cases there are many symptoms which must be searched for with care and inquired after in detail. Such symptoms, although subjective, that is dependent upon what the patient tells us or does himself, are in my opinion, of great value, and afford evidence second only to the purely objective phenomena. Of course, I do not include answers to leading questions, as in regard to pain or peculiar sensations, but rather the results of examination into disturbances of motion and sensibility. Furthermore, symptoms of a slight and partial character, such as slight loss of sensation, poor vision, slight tenderness, etc., are more apt to be genuine, for the simulator usually goes to extremes.

In what I have to say I shall touch lightly upon the symptoms of the typical organic affections which may follow injury, such as transverse myelitis, paralysis from direct injury to the brain or cord, fractures, neuritis, or the typical degenerative diseases like tabes or general paralysis. Such results of injury are less common, and the symptoms of these affections are usu-

ally so well marked that the diagnosis is easy. The chief difficulty lies with the cases of so-called "spinal concussion" or "railway spine," the "traumatic neuroses" of the recent German observers.

In the first place, then, a full history of the patient's trouble should be taken, including an account of the accident. This history should be taken without the presence of a third person, unless another physician be present. Careful inquiry should be made in regard to all the symptoms, and the functions of all portions of the body should be investigated. After that it is well to get a supplementary account of the patient's condition from some member of the family. Statements from casual acquaintances who see and can know little about the patient are not of much value. During this time many of the symptoms to be spoken of later should be noted and the estimate made as to the mental condition.

PSYCHICAL SYMPTOMS.

It is comparatively rare that we meet with any pronounced type of insanity following injury. There is a form of primary traumatic insanity with dementia, disturbed consciousness, confusion, hallucinations and maniacal outbursts which is occasionally observed. Dementia and general paralysis may also rarely follow injury. For the detection of these I must refer to the treatises on insanity, noting in passing, that many alienists think that simulation of insanity is in itself a symptom of mental derangement.

In the majority of cases, however, there are distinct psychical disturbances, not reaching the degree of actual insanity, which can be detected on careful examination. The patient has an anxious, furtive, restless look, or else he may be distinctly melancholy. He is sometimes distinctly emotional, and bursts into

tears on slight provocation, shedding actual tears. He becomes distinctly hypochondriacal. He wanders about restlessly with his fingers fumbling with his clothes, or twisting together. More often he sits by himself, avoiding other people, caring little for what is going on, and taking little interest in anything—even in his suit for damages. He has little to say, and what he says is in a constrained tone and broken by sighs or gaspings for breath. The memory and the mental power are much poorer than before his injury. He is, moreover, abnormally irritable, and he shows it by objecting to examination; he cannot bear the noise of his children or the slightest disturbance of his domestic life. Finally, the power of persistent mental or physical application is lost; although he may attempt to work he cannot pay attention to it nor keep at it; and when at home, he never can occupy himself in anything. Reading or listening to reading becomes impossible after a few minutes. The whole train of psychical symptoms may also have brief periods of exacerbation, “anxious spells,” lasting a few moments and being attended with increased frequency of the pulse.

This psychical symptom-complex, with its marked features of irritability, depression and loss of power of persistent application, is of very great value in diagnosis. It is present to a greater or less degree in the majority of severe cases. I believe, moreover, that it is practically impossible to feign this condition successfully. If the patient himself produces upon the physician, after careful observation, the impression of this condition, and if his own statements and the statements of his family corroborate it after close questioning, it may be set down as genuine. It may require several observations, but, if the physician be sufficiently familiar with mental disturbances to be capable of judging

intelligently concerning them, a definite conclusion can be reached, and the patients possessing medical knowledge and the immense dramatic skill requisite to simulate this condition successfully are very few.

In addition to these psychical symptoms the patient will often report certain other cerebral symptoms, which should be given some weight. Headache is common, but usually it is said not to be very severe — the simulator's pains are generally intense. Vertigo is often present. The speech is seldom much disturbed, except in the way I have just mentioned. Hoarseness demands a laryngeal examination to discover its cause. True aphasic symptoms are absent except in cases of direct injury to the speech centres. The characteristic speech of general paralysis and multiple sclerosis is familiar. In these affections, too, the handwriting is typical, and a specimen of it ought always to be procured.

Before speaking in detail of the physical examination it may be stated that a careful examination of the body should be made for evidence of local injury, bruises, wounds, scars, or fractures.

MOTOR SYMPTOMS.

Eye. — Each eye should be examined separately, and then both together. We must note the power of movement of the eye-ball in all directions, the size of the pupils and their relation to each other, and the reaction of the pupils to light, accommodation, and irritation of the skin of the neck. Although it is sometimes a problem of exceeding difficulty to determine just what muscle or muscles may be paralyzed, it is usually an easy matter to determine that some muscle is paralyzed, and the simulation of paralysis of any muscle of the eye or of the eyelid is impossible. Nystagmus is another incontestable symptom, but it

is often to be noticed only when the eyes are turned in one particular direction. This symptom is occasionally present in traumatic neuroses, but oculo-motor paralysis is extremely rare. In oculo-motor paralysis the patient will complain of double vision. It occasionally happens that the patient has double vision with only one eye. This is so rare a symptom and apparently so impossible that no simulator would venture to feign it. Therefore, when it is reported, the chances are greatly in favor of its genuineness.

Dilatation or contraction of the pupils may be produced by drugs; in that case they will not respond to light or accommodation, but in dilatation from disease the same thing may happen. Unequal pupils that react are incontestable. They are not common, however, except in degenerative diseases like general paralysis. Temporary inequality from an abnormally mobile pupil is occasionally seen in neurasthenic conditions, and has little significance. In pupils of moderate size a failure to react is also incontestable evidence of disease, and the proof is even stronger if the pupils react to accommodation and not to light. This is occasionally noted in traumatic neuroses, and is not uncommon in tabes and general paralysis.

Most of the oculo-motor symptoms, therefore, are of a class that are purely objective and cannot be feigned, but in the majority of cases of traumatic neuroses they are absent. In obscure cases, therefore, their absence can count for little but their presence means very much.

Face. — Paralysis of all branches of the facial nerve cannot be simulated, but it is due to peripheral trouble and is very rarely seen after injury. Paralysis of the lower part of the face is seen in certain forms of brain disease, and is not easy to simulate. In central paralysis the power of voluntary movement may be lost, and

yet the face may move from emotion, as in laughing or crying. If such a thing is noted it therefore does not prove simulation, but rather the reverse, for, if a simulator had so great skill as to feign facial paralysis successfully, he would be very likely to manifest it constantly. Fibrillary tremor of the face and tongue is of considerable value in the diagnosis of degenerative diseases like general paralysis, and is, of course, incontestable. Paralysis of the tongue is so rarely seen in any traumatic case that it need not detain us.

Paralysis.—It is well to examine the limbs systematically, beginning with the arms, and directing the patient to make all the movements at each joint, proceeding from the trunk to the periphery. All the joints should also be moved passively to detect any joint disease. Then the patient should be directed to make the principal movements against the resistance of the examiner, which affords the only practicable test of muscular strength, although it is not a test which can be expressed in figures. I need not call attention to the fact that the distribution of the paralysis is a guide for the localization of the disease. Paralysis is a favorite symptom for the simulator, and the detection of a bogus paralysis is not always easy. Fortunately our suspicions need not be excited unless we meet with a paralysis without anæsthesia, contracture, altered reflexes, atrophy or electrical changes. In such cases much care is needed to detect fraud. The unexpected application of a very strong faradic current or the ostentatious use of the actual cautery, may cause a movement of an alleged paralyzed limb. When a patient with a paralyzed arm stoops the arm drops to the perpendicular; the simulator is apt to keep his at his side. Actual paralysis, however, is rare. It is seen, of course, in transverse myelitis, where the other symptoms render the diagnosis easy,

and in neuritis, which, as I have shown elsewhere,² is not an uncommon complication of "concussion" cases. It is also observed in the hysterical monoplegia so graphically described by Charcot — the "local traumatic neurosis" of Strümpell³ — which, like all forms of traumatic hysteria, is very rare in this country. In the general traumatic neurosis there is rarely any paralysis, but all movements are slow and feeble, and the contraction of any group of muscles cannot be maintained, as some forms of dynamometer will show. Here Oppenheim⁴ has shown that the suspicion of simulation may be wrongly excited because the patient apparently calls many muscles into play, makes a tremendous effort, and accomplishes little, as if he were really holding his muscles in restraint. This is not due to simulation, however, but to the loss of memory of the motor force necessary. Weakness is more likely to be genuine than actual paralysis, and, when combined with other symptoms is of considerable value.

Gait. — Beside noticing the ordinary gait we should make the patient walk with his eyes shut, making quick turns, and also walk barefooted, which will reveal slighter changes. The ataxic and cerebellar gaits are occasionally seen, but the commonest gait in the traumatic neuroses is an approximation to the spastic gait, with short, shuffling steps. There is no absolute criterion of the genuineness of the gait. Above all in the majority of cases all movements, especially sitting and rising, are governed by the necessity of keeping the spine rigid. Of this stiffness in the back I will speak later.

Contracture and Spasm. — Contracture can be readily distinguished from active efforts to hold the limb in the same position, by the absence of any visible

² Boston Med. and Surg. Jour., November 1, 8, 1888.

³ Berliner Klinik, 1888, Heft 3.

⁴ Die traumatischen Neurosen, p. 107. Berlin, 1889.

and active contraction of the muscles. It is impossible to feign this condition, but it is rare except in gross disease of the nervous system and in hysteria. In the traumatic neuroses, however, there is apt to be more or less rigidity of the muscles, which is readily recognized and not very apt to be simulated. Clonic spasm is seldom if ever seen.

Convulsions.—Temporary lapses from consciousness are occasionally reported, often associated with vertigo, but true convulsions are rare except as a result of injury to the head. If there is a history of convulsions corroborative evidence may be afforded by bodily injuries or scars on the tongue. If the patient be seen in a convulsion the presence of dilated and immobile pupils is the best test for its genuineness.

Tremor.—Not only must we note the existence of tremor when the patient is presumably off his guard, but we must observe whether it is present during the performance of certain rather delicate movements, such as lifting a glass full of water to the mouth. The latter, for reasons already given, is more apt to be genuine. In traumatic neuroses, a general tremor is not uncommon, and sometimes it extends to so many muscles, including the muscles of the neck, that simulation is hardly possible. The true intention tremor, such as is seen in multiple sclerosis, is occasionally seen in these cases, and is a symptom not likely to be feigned, or if feigned, it will be introduced into the more automatic movements and suspicion may thus be excited. Intention tremor when genuine is a symptom of considerable value as indicating organic disease. Fibrillary tremor, seen most commonly in the limbs in muscular atrophy, is an incontestable symptom.

Ataxia.—We must test the accuracy of movements with the eyes open and shut and compare it with the

accuracy of unconscious movements. We must test the patient's power of standing, of standing with the eyes shut and the feet together, of standing on one foot and of standing barefooted. Swaying when barefooted with the eyes shut and not with the boots on is again a valuable test of genuineness. The patient's power of keeping the limbs in a fixed position with the eyes open and shut must also be tested. There is no absolute criterion for any of these forms of ataxia, but the presence of the more delicate shades of it is of much value. Ataxia is occasionally seen in traumatic neuroses, but it is not very common. Its significance in tabes and neuritis is well-known.

Muscular Atrophy and Electrical Excitability. — Much stress is laid upon the electrical reactions in the courts, and a recent writer goes so far as to say: "injury to the spinal cord should always be indicated by muscular atrophy in a more or less marked degree, and when no change is noted in the nutrition of the muscles, doubt may well exist in the mind of the expert as to there having been any concussion of the spinal cord."⁵ If by "concussion of the spinal cord" is meant the condition once called by that name and now generally recognized to be cerebral as much if not more than spinal — the condition in short, to which I have repeatedly referred in this paper as the traumatic neurosis — I would say that muscular atrophy is rarely present, even in fatal cases, and that the electrical reactions in the majority of cases reveal nothing. Nevertheless, the electrical reactions should always be tested, for, when they are altered, we have incontestable evidence of organic disease of the highest value. In some cases there is a complicating neuritis, with its accompanying electrical changes. Apart from this, muscular atrophy in

⁵ H. H. Smith: Jour. Am. Med. Assoc., August 10, 1889

the traumatic neuroses is rare, and although quantitative changes in the electrical reactions are sometimes seen, the qualitative changes of the degenerative reactions are as rare as atrophy. In testing the reactions the indifferent electrode, which must be "large," (5 x 10 cm.) well covered with absorbent cotton, and thoroughly wet, should be placed either on the sternum or the mid-dorsal region, but, whichever position be selected, the same position should be chosen in all cases. The nerves and muscles should be tested, at the appropriate motor points, with a "normal" electrode (10 sq. cm.) on an interrupting handle. The faradic current should be used first and the position of the cylinder noted for the earliest reaction. The galvanic current should then be used, with a galvanometer in circuit, and the smallest current (in milliamperes) noted at which KaSZ and AnSZ occur. Beside this we must note whether contractions be slow or quick. If muscular atrophy be apparent on inspection, careful measurements should be taken, and the presence of fibrillary contractions noted. Of course, the emaciation not uncommon in these cases of protracted illness would never be mistaken for true muscular atrophy. Although the one-sided view of refusing to recognize cases as genuine unless muscular atrophy be present, is utterly incorrect and misleading, still, as I have just said, in the very rare cases where it is present it affords absolute and incontestable evidence of disease, especially where electrical changes are added.

I may say, in passing, that general emaciation, to which I have just referred, is, of course, evidence in favor of a chronic disease and it is not a thing to be simulated.

REFLEXES.

Cutaneous Reflexes. — The important skin reflexes to be tested are the plantar, cremaster, abdominal and

epigastric. The last two are occasionally absent in health, but absence of the first two is always significant. Another symptom of importance is a difference between the reflexes on the two sides of the body, which is always indicative of some nervous disorder. In many cases these reflexes are undisturbed, but when there is disturbance it is a symptom of disorder in the nervous system which cannot be simulated. This disorder is not necessarily coarse organic disease, for in hysterical anaesthesia the skin reflex may be lost, but the changes in the reflexes signify some genuine trouble.

Tendon Reflexes. — The most important reflex here is the knee-jerk. The best way to obtain this is to seat the patient on a table with his legs hanging over the edge. The legs should be bare, and all constriction removed. By placing one hand upon the quadriceps any attempt at voluntary control of the muscle can at once be detected. The muscle should be relaxed, and the tendon struck with a percussion hammer, a book or the ulnar edge of the hand. If there is no response the patient should re-enforce the reflex by clenching the hands tightly. Persistent absence of the knee-jerk under re-enforcement I believe always signifies organic nervous disease. If cases do occur when it is absent in health they are extremely rare and still questionable. Absence of the knee-jerk, almost constant in tabes and multiple neuritis is extremely rare in traumatic neuroses. In the majority of cases it is somewhat exaggerated. If the jerk is very lively the leg should be extended, the finger placed over the patella which should be drawn down and the finger should be struck a smart blow with a percussion hammer. When the knee-jerk is exaggerated this will cause a contraction of the muscle, and in extreme cases it will set up a clonus. It is

a rather delicate and an incontestable proof of exaggeration. Gower's front-tap contraction is another delicate test. Neither of these, however, indicate a degree of exaggeration that is necessarily abnormal.

When the exaggeration is abnormal sudden dorsal extension of the foot on the leg while keeping it strongly extended will give rise to a clonus. If this or the patellar clonus or both be present on repeated examination we have incontestable proof of organic nervous disease. Ankle clonus, however, is of value only when there is a persistent rhythmical clonus. A few irregular contractions soon dying out mean nothing. This clonus when persistent and constant is indicative of disease in the lateral column of the spinal cord. It is rare, however, to find it in traumatic neuroses.

In a few cases, especially in hemiplegia and paralysis of one arm, the reflexes from the upper extremity may be of interest, but, as a rule, they have much less value.

SENSORY SYMPTOMS.

Anæsthesia. — The best method of testing the sense of touch is by the finger tips. By a little contrivance the hand may be held so as to hide the finger, and the patient, even when not blindfolded, cannot see whether he is touched; moreover, the physician can thus regulate the strength of the touch perfectly. The compass æsthesiometer is of very little value.

In the majority of cases of traumatic neuroses the sense of touch is diminished in some part of the body, and it may even be absent. Exact hemianæsthesia, however, is rare. For simple diminution of sensation we have no criterion other than careful testing, but where absolute loss of sensation is feigned the strongest faradic current through a wire point or the actual cautery will usually prove too powerful to be borne. If the anæsthesia have a sharply defined boundary it is

genuine, for my own experiments coincide with Dr. Putnam's in showing that it is impossible for a simulator to maintain such a boundary with exactness. The reverse of this does not hold, for the limit of anæsthesia in genuine cases may vary from day to day. The distribution of anæsthesia has also some value in localization.

The sense of locality is tested by making the patient indicate, with his finger, his eyes being closed, the part touched. The sensibility to pain can easily be tested by pricking with a pin. The sensibility to temperature can be tested by breathing and blowing upon the skin, or by applying teaspoons or test-tubes to the skin, heated or cooled. The sense of pressure can be readily tested by the pressure from the finger tips. All these forms of sensibility should be tested, for they may be affected even when the tactile sensibility is normal. *Tabes*, of course, presents the greatest number of anomalous forms of sensibility. The senses of pain and temperature are lost in *syringo-myelia*. I saw a case of traumatic neurosis not long ago, where all other forms of sensibility were normal, but the sensibility to pain was lost over one-half the body. In such cases the question of simulation is in the highest degree improbable.

Delay in the conduction of sensation should also be noted, by making the patient speak as soon as a touch is felt. This is a symptom seen occasionally in *tabes*, but rare elsewhere. It is not likely to be simulated, but we have no criterion of its genuineness. If the compasses are used we may sometimes meet with *polyæsthesia*, but I have never seen it except in *tabes*.

The muscular sense should be tested in two ways. The patient, being blindfolded, should be told to put one limb in the same position as the other, which has previously been put in some unusual position by the

physician. This tests the sense of position. Then the limb should be moved passively, taking hold of it in a plane at right angles to the plane of motion, so as to avoid pressure, and the patient asked about the movement. This tests the sense of motion. We have again no criterion of these tests, but they are distinctly beyond the ken of the average simulator, and hence they have considerable value. Muscular sense may be impaired with the other forms of sensibility in the traumatic neuroses, but the disturbance is less common.

Hyperæsthesia. — For hyperæsthesia in the strict sense of the term, we have no practical test, but what we usually call hyperæsthesia is really hyperalgesia, that is, an increased susceptibility to pain. It occasionally happens that we meet with extreme tenderness of the skin to a slight touch, when deep pressure is comparatively painless. This is by no means a proof of simulation, but it is more common in hysterical affections than in organic disease. The existence of hyperæsthesia is manifested during the test for anæsthesia. At a recent meeting of the neurologists and alienists of South-west Germany, at Baden-Baden, Rumpf reports an expedient recommended by Mannkopf.⁶ It is to note the pulse during pressure on an alleged painful spot. If the pressure really causes pain, the pulse will be quickened. This, however, although valuable in cases of marked tenderness I have found does not hold for moderate degrees of tenderness such as we find in many cases of neuritis. The diagnostic value of tender points in neuralgia is considerable, and few would be likely to know enough to simulate them.

Pain. — It may be well to speak of pain, although it is purely a subjective symptom. As a rule the pain of traumatic neuroses is not very severe, but some-

⁶ Centralblatt f. Nervenheilk., No. 12, June 15, 1889.

times it may be. Occasionally neuralgia, due very often to direct injury of a nerve, may complicate the symptoms. The lancinating pains so common in tabes, are very rare. In genuine cases, it often happens that the pain leaves little impress on the countenance, so that we cannot take it as a guide.

Paræsthesia. — In a good many cases the patient will complain of various forms of paræsthesia, but, of course, we have no criterion of their genuineness. Two forms only need be spoken of as suggestive. One is paræsthesia in the ulnar region, which is suggestive of tabes; the other is paræsthesia in the form of a girdle, which is met with only in organic disease of the cord. The value of this symptom is increased if we get a history of its moving up the body.

Pain in the Back. — I have already referred to the efforts which many patients have to keep the back rigid. Pain in the back probably occurs only when there has been direct injury in that region. It is most commonly due to a traumatic lumbago, when the pain is increased on motion and the muscles are tender on pressure. In a few cases there is a pure neuralgia, ilio-inguinal or lumbo-abdominal, where the pain is more severe but less influenced by motion, and the tenderness is chiefly over Valleix's points. In cases of pure traumatic neurasthenia the pain is not affected by motion, and there is great tenderness over the spinous processes — the "spinal irritation" of former days. For a fuller discussion of this subject, I must refer to the recent paper of Dr. J. A. Jeffries, read before the Massachusetts Medical Society. The determination of the variety of pain is usually easy, but we can judge only approximately of its genuineness. Pain in the back is never the sole trouble, however, but it is a frequent complication in the traumatic neuroses.

SPECIAL SENSES.

Smell. — To test the sense of smell we must employ familiar odors, camphor, peppermint, etc., carefully avoiding irritants like ammonia. If the smell be lost the nasal mucous membrane should be examined. Loss of smell is a purely subjective symptom, and one of little value except when unilateral, when it may be of corroborative evidence in hemianæsthesia.

Sight. — The vision should be tested for each eye separately, with the ordinary test-types. If the vision be diminished, with no ophthalmoscopic changes, a careful test of the refraction is necessary, which requires the training of a specialist. In many cases of traumatic neurosis, the symptoms of asthenopia are manifest, blurring, spots before the eyes, photophobia, and a rapid failure of vision after looking at an object for a few moments. I must refer to special treatises for the tests for feigned blindness.

The color sense is usually unaffected, but it may be impaired in one eye in cases of hemianæsthesia, and it is well to test it with worsteds, according to the usual rules. In one or two cases it has been reported that everything looked yellow.

The ophthalmoscope usually reveals nothing, but it may give objective evidence of the utmost value. In a few cases of traumatic neurosis there has been optic atrophy. Optic neuritis is even more rare, and suggests some cerebral growth or inflammation. Care must be taken not to confuse the redness and obscure outline of the disc seen in hypermetropia for a beginning neuritis.

The field of vision must always be tested, for in many cases of traumatic neuroses it is affected. The rough test with the fingers will do in pronounced cases, but it is of little value in detecting slight changes. The black-

board is better. The patient must sit at a fixed distance from it, within a foot, and the limits of the field be marked out. The perimeter is the most accurate and the quickest method of testing, but it is too expensive an instrument for the general practitioner. The field of simple vision, the field for form, should first be tested, and then the field for colors. It will be remembered that the field for form is the largest, then the field for blue, yellow, orange, red, green and violet the smallest. Hemianopsia is not met with except in disease of the optic tract. A peripheral limitation of the field is a common symptom in traumatic neuroses. If the relation of the color fields is disturbed, the trouble is probably genuine. If, on testing, we find the field limited, and its boundary remains the same during our examination, the case is genuine, for from experiment, I believe that it is impossible for the eye to retain a constant imaginary boundary to the field of vision, without some object or mark to aid it. Hence, any marking of the blackboard should be avoided. It must also be borne in mind, that a very marked genuine limitation of the visual field is in no way inconsistent with the patient's getting about with perfect ease.

Hearing. — The hearing should be tested for each ear separately, and the first test should be with the watch through the air. The patient should be turned about to test the other ear, so that the sound may come from the same quarter of the room, and the watch should be held beyond hearing distance and gradually approximated to the ear. If the hearing be good and the speculum reveal nothing, no further tests need be made. If there be diminished hearing and the speculum shows no middle ear trouble, the ear should be closed and the watch held close by the zygoma, and then pressed on the bone. If bone conduction is re-

tained, the trouble is probably outside the labyrinth. Then the time during which the tuning-fork can be heard through the air and through the bone should be noted. In middle ear trouble the bone conduction is longer. In the traumatic neuroses there is often diminution of hearing, unilateral in hemianæsthesia, but deafness is very rare. Feigned deafness in one ear may be readily detected by plugging the flexible tube of an ordinary binaural stethoscope and making the patient listen through it. By reversing the tubes of the end-piece, the sound can be conveyed to either ear without his knowledge. For further tests, I must refer to the special treatises, but enough has been said to guide the examiner in making a tolerably accurate estimate of the patient's power of hearing.

Taste. — Taste must be tested by applying salt, sweet, sour and bitter solutions to the front and back of the tongue. Loss of taste is rarely noted, except on one side in hemianæsthesia.

THORACIC SYMPTOMS.

Examination of the lungs usually reveals nothing of importance. Examination of the vascular system may afford objective evidence of the highest value. The heart's action is rapid, weak, and perhaps irregular, in the traumatic neuroses; adventitious murmurs are not often present; the pulse may later show signs of arteriosclerosis; the skin is cold, cyanotic, and at times œdematous. These symptoms are common and, of course, incontestable, and the recent autopsy of a case of traumatic neurosis, by Sperling and Kronthal,⁷ shows their importance in the pathology of these disorders.

ABDOMINAL SYMPTOMS.

The patient usually reports loss of appetite, indiges-

⁷ Neurolog. Centralblatt, Nos. 11 and 12, June 1, 15, 1889.

tion, and constipation, symptoms of which we can seldom get any objective evidence.

GENITO-URINARY SYMPTOMS.

Disturbance of micturition is not uncommon. As a rule, there is simply weakness in passing water, but occasionally there is actual incontinence. The latter is important, especially if associated with incontinence of feces, as indicating organic nervous disease. In many cases we can observe the process of micturition, and note the strength of the stream, the existence of dribbling, and the stains and odors of urine on the clothing. If the patient be a man over fifty-five, a soft rubber catheter should be passed after micturition to see if the bladder be wholly emptied, and that there is not the incontinence of retention caused by an enlarged prostate.

Impotence is a favorite symptom in the courts. We cannot test it, and, even when it is present, it has slight value, for it may occur from all sorts of psychical conditions, or from simple weakness. Priapism is occasionally a valuable symptom in injuries of the spinal cord.

Menstrual disorders are so common in all conditions of debility, that they afford little information in these conditions. They may possibly be due to some displacement caused by the injury, which can be readily detected by a vaginal examination.

Such, then, should be the methods of examination. A few words remain to be said in regard to the results and to the important question of simulation.

The diagnosis of the typical forms of nervous disease which may follow injury, transverse myelitis, paralysis from brain disease, neuritis, tabes, etc., is usually comparatively easy. It is only in these obscure cases of "concussion," the traumatic neuroses, that trouble arises.

We may, in such cases, obtain certain incontestable objective symptoms: oculo-motor paralysis, immobile or unequal pupils, nystagmus, contractures, muscular atrophy and degenerative reactions, ankle clonus, difference in the reflexes on the two sides, loss of knee-jerks, loss of plantar or cremaster reflex, sharply defined anaesthesia, optic atrophy or neuritis, contracted fields of vision, and disturbances of the circulation.

In the average case of alleged injury to the brain or spinal cord, we may have one or more of these purely objective symptoms, or they may all be absent. We find, moreover, a set of subjective or semi-subjective symptoms, many of which are elicited only by careful search, symptoms not very pronounced, but rather characteristic, and we usually find many such symptoms present in the individual case.

The cases presenting such symptoms, these traumatic neuroses, are usually, I believe, grave, and the prognosis is distinctly unfavorable. It is not my object here to discuss their nature, but such is the opinion of those observers who have studied the subject most thoroughly.

The assumption is often made, however, that the majority of these cases are fraudulent, or vastly exaggerated; that most of the symptoms are simulated, and that the patients get well when damages are paid. After a pretty thorough examination of the recent literature upon this subject, I am rather amused to find scarcely any support for this theory from neurologists. The allegations of fraud and the reported fraudulent cases come from surgeons, and often too from railway surgeons, whose bias is most evident. The surgeon's training and experience has made him familiar with objective phenomena in their most pronounced form; he is seldom an expert in nervous diseases, and, therefore, by his training and mental habit, he is incapable

of appreciating at their full value the more subtle symptoms which are often so pregnant with meaning to the neurologist. I believe it incredible and practically impossible that an ordinary man, often uneducated and certainly without medical knowledge, should invent a symptom-complex which is the same in Berlin, in Leipzig, in Erlangen, in Boston, and in country towns in Massachusetts; that this symptom-complex should be made up of a multitude of symptoms, often revealed only on special methods of examination, unfamiliar even to the general practitioner; and that this man should, for hours at a time and on repeated occasions, successfully feign, not only all these symptoms against the keen examination of an expert, but also a perfectly definite and consistent psychical symptom-complex with all its details of expression and manner. As I said in the beginning, the simulator contents himself with a few striking symptoms, he paints them in flaring colors—not in the subdued tones common in traumatic neuroses—and you never have to search for them.

One argument, in support of the view that most of these cases are fraudulent, is so amusing that I must quote it: "Injuries that are pure accidents, or injuries where a corporation of some character is not at fault, never result in concussion of the spinal cord."⁸ The context shows that by concussion of the spinal cord is meant these cases of traumatic neuroses. In the light of reported cases and of the recent contributions to our knowledge of this subject, such a statement can come only from extreme partisan bias or absolute ignorance.

In conclusion I will quote a few words from a recent communication by Oppenheim,⁹ whose opinion is based

⁸ Judd: Jour. Am. Med. Assoc., August 10, 1889.

⁹ Neurolog. Centralblatt, August 15, 1889.

on wide experience, as embodying my own views: "In the majority of cases," he says, "the symptoms unite to form a type of disease which can not, in the present state of our knowledge, be mistaken, from its significance, its clearness, its objective character, and the sharpness with which it is defined. I will state only this, that, in the polyclinic, where I examine such cases before a large audience of students and physicians, in almost three-quarters of the cases I develop the diagnosis in a convincing manner on the first examination, so that I often hear the question, 'How is it possible that such diseases could be regarded as simulated?'" In the remainder, he adds, repeated examinations, or the crucial test of hospital residence, will enable the physician to decide.

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